AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the Application:

Listing of Claims:

1. (Currently Amended) A method of operating a data processing system, the system comprising one or more application programs requiring persistent data storage for data files of application data, a plurality of storage devices each accessible via a computer network to one or more computers executing ~~said~~ the application programs, and a broker program, wherein the method comprises:

receiving, by means of ~~said~~ the broker program, a request from an application program for storage of a data file of application data, ~~and~~ the request including an expiry date, beyond which the data file is no longer required and may be deleted; and

selecting for ~~said~~ the data file which of ~~said~~ the plurality of storage devices will be used to store ~~said~~ the data file in accordance with the characteristics of the application data to be stored, including the expiry date, and the state of the plurality of storage devices ~~and the state of said storage devices, wherein said characteristics of the data to be stored include an expiry date, beyond which the application data is no longer required and may be deleted~~.

2. (Currently Amended) A method according to claim l, comprising monitoring, by means of the broker program, the remaining storage space available on each of ~~said~~ the storage devices, to distinguish between in-use storage devices which have had data files written to them and empty storage devices which have not.

3. (Currently Amended) A method according to claim 2, wherein ~~said~~ the selecting step comprises selecting in-use storage devices in preference to empty storage devices.

4. (Original) A method according to claim 2, comprising: monitoring how much data is waiting to be written to each storage device, to detect an overload condition in the process of

writing the data; and selecting, if an overload condition is detected for a storage device selected for storage, a different storage device for storage.

5. (Currently Amended) A method according to claim 4, wherein ~~said~~ the selecting step comprises selecting in-use storage devices in preference to empty storage devices.

6. (Currently Amended) A method according to claim 1, comprising: storing, for each storage device, the latest expiry date of data files stored on that device, or of data files that are to be stored; and permitting application data to be stored on a storage device if its expiry date is within a predetermined range of ~~said~~ the latest expiry date; such that application data with similar expiry dates can be stored together and when such similar expiry dates have passed the storage device can be erased and re-used.

7. (Currently Amended) A method according to claim 6, comprising selecting another storage device for storage, if the expiry date of ~~said~~ the application data is outside of the predetermined range of ~~said~~ the latest expiry date.

8. (Currently Amended) A method according to claim 1, comprising storing for each of ~~said~~ the storage devices a target expiry date, and selecting which of ~~said~~ the storage devices to use in dependence on a comparison of ~~said~~ the expiry date and ~~said~~ the target expiry date.

9. (Currently Amended) A method according to claim 8, comprising preventing application data from being stored on a storage device, if the target expiry date for that storage device is earlier than ~~said~~ the expiry date.

10. (Currently Amended) A method according to claim 8, comprising preventing application data from being stored on a storage device if the target expiry date for that storage device is earlier than ~~said~~ the expiry date by more than a predetermined margin.

11. (Currently Amended) A method according to claim 1, comprising, after ~~said~~ the data

file has been written to ~~said~~ the storage device, preventing ~~said~~ the file from being modified or deleted until ~~said~~ the expiry date has passed.

12. (Currently Amended) A method according to claim 6, comprising, after ~~said~~ the latest expiry date has passed, erasing the contents of ~~said~~ the storage device.

13. (Currently Amended) A method according to claim 1, wherein ~~said~~ the characteristics of the data to be stored include a classification of the content of ~~said~~ the application data.

14. (Currently Amended) A method according to claim 13, comprising: storing for each of ~~said~~ the storage devices, a target content type; comparing ~~said~~ the classification of the content of ~~said~~ the application data and ~~said~~ the target content type; and preventing ~~said~~ the application data from being stored in a storage device if the target content type for that device and the classification do not match.

15. (Currently Amended) A method according to claim 1, wherein ~~said~~ the characteristics of the data to be stored include the application program which requires its storage.

16. (Currently Amended) A method according to claim 1, wherein ~~said~~ the characteristics of the data to be stored include the size of the application data.

17. (Currently Amended) A method according to claim 1, comprising writing ~~said~~ the application data to and/or reading ~~said~~ the application data from ~~said~~ the storage devices directly by means of ~~said~~ the application programs via ~~said~~ the computer network.

18. (Currently Amended) A method according to claim 1, comprising notifying ~~said~~ the application program of the storage device used to store ~~said~~ the data file as determined by ~~said~~ the broker program, such that ~~said~~ the application program can store means to identify the device.

19. (Currently Amended) A method according to claim 18, wherein ~~said~~ the data files are retrieved from ~~said~~ the storage device by ~~said~~ the application program directly via ~~said~~ the computer network and without reference to ~~said~~ the broker program.

20. (Currently Amended) A method according to claim 1, comprising determining, by means of the broker program, the directory location for storage of ~~said~~ the data file on ~~said~~ the storage devices.

21. (Currently Amended) A method according to claim 20, comprising creating, by means of ~~said~~ the broker program, the directory entry for ~~said~~ the data file in ~~said~~ the directory location in anticipation of data being written to ~~said~~ the file by the application program requesting storage.

22. (Currently Amended) A method according to claim 20, comprising notifying, by means of the broker program, ~~said~~ the directory location of ~~said~~ the data file to ~~said~~ the application program for storage by ~~said~~ the application program.

23. (Currently Amended) A method according to claim 20, wherein the directory entry for ~~said~~ the data file in ~~said~~ the directory location is created by ~~said~~ the application program prior to data being written by it.

24. (Currently Amended) A method according to claim 1, wherein the state of ~~said~~ the storage devices includes the current availability of such devices for data to be written thereto.

25. (Currently Amended) A method according to claim 1, wherein the state of ~~said~~ the storage devices includes the amount of free space available in ~~said~~ the storage devices.

26. (Currently Amended) A method according to claim 1, wherein the state of ~~said~~ the storage devices includes the rate at which data is being read from and/or written to such devices.

27. (Currently Amended) A method according to claim 1, comprising monitoring the status of ~~said~~ the storage devices, detecting when new storage devices have been added, and making these available for storage.

28. (Currently Amended) A method of operating a data processing system to store data, comprising:

receiving a request from an application program, among one or more application programs, for storage of a data file of application data, the request including an expiry date, beyond which the data file is no longer required and may be deleted;

determining one or more characteristics of ~~said~~ the application data file, including an expiry date ~~beyond which the application data is no longer required~~;

monitoring the status of storage devices in a plurality of storage devices; and

selecting a storage device from ~~said~~ the plurality of storage devices to store a data file ~~of application data~~ in accordance with the characteristics of the application data to be stored, including the expiry date, and the state of ~~said~~ the plurality of storage devices;

wherein ~~said~~ the data file is stored on the selected storage device.

29. (Currently Amended) A system for storing data comprising:

a plurality of storage devices;

a processor in communication with the plurality of storage devices, wherein the ~~a broker program for receiving requests~~ processor:

receives requests for storage of a data file of application data from one or more application programs requiring persistent data storage, ~~and for selecting for said~~ the request including an expiry date, beyond which the data file is no longer required and may be deleted; and

selects ~~data file~~ which of [[a]] the plurality of storage devices~~, accessible to said one or more application programs and said broker program via a computer network,~~ will be used to store ~~said~~ the data file[[s;]] ~~wherein said Broker program selects storage device~~ in dependence on the characteristics of the data file to be stored, including the expiry date, and the state of the storage devices, such that the data file ~~said storage devices, wherein said~~ the ~~characteristics of~~

~~the data to be stored include an expiry date, beyond which the application data is no longer be required and may be deleted; such that said application data~~ is stored in the ~~allocated~~ selected storage device ~~as a data file~~.

30. (Currently Amended) A system according to claim 29, comprising a look-up table accessible by the broker program, wherein the look up table stores the remaining storage space available on I each of ~~said~~ the storage devices such that in- use storage devices which have had data files written to them and empty storage devices which have not are distinguished from each other.

31. (Currently Amended) A system according to claim 30, wherein ~~said~~ the broker program is operable to select in-use storage devices in preference to empty storage devices.

32. (Currently Amended) A system according to claim 30, wherein the look-up table stores how much data is waiting to be written to each storage device, such that an overload condition in the process of writing the data to a storage device can be detected; wherein the broker program is operable to select, if an overload condition is detected for a storage device selected for storage, a different storage device for storage.

33. (Currently Amended) A system according to claim 32, wherein ~~said~~ the broker program is operable to select in-use storage devices in preference to empty storage devices.

34. (Currently Amended) A system according to claim 29, comprising a look-up table accessible by ~~said~~ the broker program, wherein ~~said~~ the look-up table stores, for each storage device, the latest expiry date of data files stored on that device, or of data files that are to be stored, and wherein the broker program is operable to permit application data to be stored on a storage device if its expiry date is within a predetermined range of ~~said~~ the latest expiry date, such that application data with similar expiry dates can be stored together and when such similar expiry dates have passed the storage device can be erased and re-used.

35. (Currently Amended) A system according to claim 34, wherein ~~said~~ the broker

program is operable to select another storage device for storage, if the expiry date of ~~said~~ the application data is outside of the pre-determined range of ~~said~~ the latest expiry date.

36. (Currently Amended) A system according to claim 29, comprising a look-up table accessible by ~~said~~ the broker program, wherein ~~said~~ the look-up table stores, for each storage device a target expiry date, and ~~said~~ the broker program is operable to select which of ~~said~~ the storage devices to use in dependence on a comparison ~~on said~~ of the expiry date and ~~said~~ the target expiry date.

37. (Currently Amended) A system according to claim 36, wherein ~~said~~ the broker program is operable to prevent application data from being stored on a storage device, if the target expiry date for that storage device is earlier than ~~said~~ the expiry date.

38. (Currently Amended) A system according to claim 36, wherein ~~said~~ the broker program is operable to prevent application data from being stored on a storage device if the target expiry date for that storage device is earlier than ~~said~~ the expiry date by more than a predetermined margin.

39. (Currently Amended) A system according to claim 29, wherein ~~said~~ the broker program is operable to prevent, after ~~said~~ the data file has been written to ~~said~~ the storage device, ~~said~~ the file from being modified or deleted until ~~said~~ the expiry date has passed.

40. (Currently Amended) A system according to claim 34, wherein ~~said~~ the broker program is operable to erase, after ~~said~~ the latest expiry date has passed, the contents of ~~said~~ the storage device.

41. (Currently Amended) A system according to claim 29, wherein ~~said~~ the characteristics of the data to be stored include a classification of the content of ~~said~~ the application data.

42. (Currently Amended) A system according to claim 41, comprising a look-up table

accessible by ~~said~~ the broker program, wherein ~~said~~ the I look-up table stores a target content type; and wherein ~~said~~ the broker program is operable to compare ~~said~~ the classification of the content of ~~said~~ the application data and ~~said~~ the target content type, and prevent ~~said~~ the application data from being stored in a storage device if the target content type for that device and the classification do not match.

43. (Currently Amended) A system according to claim 29, wherein ~~said~~ the characteristics of the data to be stored include the application program which requires its storage.

44. (Currently Amended) A system according to claim 29, wherein ~~said~~ the characteristics of the data to be stored include the size of the application data.

45. (Currently Amended) A system according to claim 29, wherein ~~said~~ the broker program is operable to notify ~~said~~ the application program of the storage device used to store ~~said~~ the data file as I determined by ~~said~~ the broker program, such that ~~said~~ the -application program can store means to identify the device.

46. (Currently Amended) A system according to claim 29, wherein the broker program is operable to determine the directory location for storage of ~~said~~ the data file on ~~said~~ the storage devices.

47. (Currently Amended) A system according to claim 46, wherein the broker program is operable to notify ~~said~~ the directory location of I ~~said~~ the data file to ~~said~~ the application program for storage by ~~said~~ the application program.

48. (Currently Amended) A system according to claim 29, wherein the state of ~~said~~ the storage devices includes the current availability of such devices for data to be written thereto.

49. (Currently Amended) A system according to claim 29, wherein the state of ~~said~~ the storage devices includes the amount of free space available in ~~said~~ the storage devices.

50. (Currently Amended) A system according to claim 29, wherein the state of ~~said~~ the storage devices includes the rate at which data is being read from and/or written to such devices.

51. (Currently Amended) A system according to claim 29, wherein the broker program is operable to monitor the status of ~~said~~ the storage devices, detect when new storage devices have been added, and make these available for storage.

52. (Currently Amended) A system for storing data, comprising:

one or more application programs requiring persistent data storage for data files of application data;

a plurality of storage devices each accessible via a computer network to one or more computers executing ~~said~~ the application programs; and

a broker program for receiving a request from an application program for storage of a data file of application data~~; and for selecting for said data file which of said~~ the request including an expiry date, beyond which the data file is no longer required and may be deleted; and to select for the data file which of the plurality of storage devices will be used to store ~~said~~ the data file in accordance with the characteristics of the ~~application~~ data file, including the expiry date to be stored, and the state of the plurality of storage devices~~, the characteristics of the application data including an expiry date beyond which the application data is no longer required~~.

53. (Currently Amended) A system according to claim 52, comprising an Application Program Interface running on the one or more computers to pass commands to and from the broker program and the application program.

54. (Currently Amended) A computer program product for controlling a computer in a data storage system, ~~said~~ the computer being operable to receive requests from one or more application programs, running on one or more computers, and requiring persistent data storage

for data files of application data, and operable to monitor a plurality of storage devices, ~~said~~ the computer program product comprising:

a recording medium readable by ~~said~~ the computer, having program code stored thereon which when executed on ~~said~~ the computer configures ~~said~~ the computer to perform the steps of: receive a request for storage of a data file of application data from an application program, ~~and select for said~~ the request including an expiry date, beyond which the data file is no longer required and may be deleted; and

select for the data file which of ~~said~~ the plurality of storage devices will be used to store ~~said~~ the data file in accordance with the characteristics of the ~~application~~ data file to be stored, including the expiry date, and the state of the storage devices ~~and the state of said storage devices, wherein said characteristics of the data to be stored include an expiry date, beyond which the application data is no longer required and may be deleted~~.

55. (Currently Amended) A computer program product according to claim 54, which when executed on ~~said~~ the computer configures ~~said~~ the computer to monitor the remaining storage space available on each of ~~said~~ the storage devices to distinguish between in use storage devices which have had data files written to them, and empty storage devices which have not.

56. (Currently Amended) A computer program product according to claim 55, wherein ~~said~~ the selecting step comprises selecting in-use storage devices in preference to empty storage devices.

57. (Currently Amended) A computer program product according to claim 55, which when executed on ~~said~~ the computer configures ~~said~~ the computer to monitor how much data is waiting to be written to each storage device, to detect an overload condition in the process of writing the data; and select, if an overload condition is detected for a storage device selected for storage, a different storage device for storage.

58. (Currently Amended) A computer program product according to claim 57, wherein ~~said~~ the selecting step comprises selecting in-use devices in preference to empty devices.

59. (Currently Amended) A computer program product according to claim 54, which when executed on ~~said~~ the computer configures ~~said~~ the computer to: store, for each storage device, the latest expiry date of data files stored on that device, or of data files that are to be stored; and permit application data to be stored on a storage device if its expiry date is within a predetermined range of ~~said~~ the latest expiry date; such that application data with similar expiry dates can be stored together and when such similar expiry dates have passed the storage device can be erased and re- used.

60. (Currently Amended) A computer program product according to claim 59, which when executed on ~~said~~ the computer configures ~~said~~ the computer to: select another storage device for storage, if the expiry date of ~~said~~ the application data is outside of the pre-determined range of ~~said~~ the latest expiry date.

61. (Currently Amended) A computer program product according to claim 58, comprising storing for each of ~~said~~ the storage devices a target expiry date, and selecting which of ~~said~~ the storage devices to use in dependence on a comparison ~~on said~~ of the expiry date and ~~said~~ the target expiry date.

62. (Currently Amended) A computer program product according to claim 61, which when executed on ~~said~~ the computer configures ~~said~~ the computer to prevent application data from being stored on a storage device, if the target expiry date for that storage device is earlier than ~~said~~ the expiry date.

63. (Currently Amended) A computer program product according to claim 61, which when executed on ~~said~~ the computer configures ~~said~~ the computer to prevent application data from being stored on a storage device if the target expiry date for that storage device is earlier than ~~said~~ the expiry date by more than a predetermined margin.

64. (Currently Amended) A computer program product according to claim 57, which when executed on ~~said~~ the computer configures ~~said~~ the computer to prevent, after ~~said~~ the data

file has been written to ~~said~~ the storage device, ~~said~~ the file from being modified or deleted until ~~said~~ the expiry date has passed.

65. (Currently Amended) A computer program product according to claim 59, which when executed on ~~said~~ the computer configures ~~said~~ the computer to erase the contents of ~~said~~ the storage device, after ~~said~~ the latest expiry date has passed.

66. (Currently Amended) A computer program product according to claim 54, wherein ~~said~~ the characteristics of the data to be stored include a classification of the content of ~~said~~ the application data.

67. (Currently Amended) A computer program product according to claim 66, which when executed on ~~said~~ the computer configures ~~said~~ the computer to: store for each of ~~said~~ the storage devices, a target content type; compare ~~said~~ the classification of the content of ~~said~~ the application data and ~~said~~ the target content type; and prevent ~~said~~ the application data from being stored in a storage device if the target content type for that device and the classification do not match.

68. (Currently Amended) A computer program product according to claim 54, wherein ~~said~~ the characteristics of the data to be stored include the application program which requires its storage.

69. (Currently Amended) A computer program product according to claim 54, wherein ~~said~~ the characteristics of the data to be stored include the size of the application data.

70. (Currently Amended) A computer program product according to claim 54, which when executed on ~~said~~ the computer configures ~~said~~ the computer to notify ~~said~~ the application program of the storage device used to store ~~said~~ the data file as determined by ~~said~~ the broker program, such that ~~said~~ the application program can store means to identify the device.

71. (Currently Amended) A computer program product according to claim 54, which when executed on ~~said~~ the computer configures ~~said~~ the computer to determine the directory location for storage of ~~said~~ the data file on ~~said~~ the storage devices.

72. (Currently Amended) A computer program product according to claim 71, which when executed on ~~said~~ the computer configures ~~said~~ the computer to notify ~~said~~ the directory location of ~~said~~ the data file to ~~said~~ the application program for storage by ~~said~~ the application program.

73. (Currently Amended) A computer program product according to claim 54, wherein the state of ~~said~~ the storage devices includes the current availability of such devices for data to be written thereto.

74. (Currently Amended) A computer program product according to claim 54, wherein the state of ~~said~~ the storage devices includes the amount of free space available in ~~said~~ the storage devices.

75. (Currently Amended) A computer program product according to claim 54, wherein the state of ~~said~~ the storage devices includes the rate at which data is being read from and/or written to such devices.

76. (Currently Amended) A computer program product according to claim 54, which when executed on ~~said~~ the computer configures ~~said~~ the computer to monitor the status of ~~said~~ the storage devices, detecting when new storage devices have been added, and making these available for storage.

77. (Currently Amended) A computer program product for controlling a computer in a data storage system, ~~said~~ the computer program product comprising a recording medium readable by ~~said~~ the computer, having program code stored thereon which when executed on ~~said~~ the computer configures ~~said~~ the computer to perform the steps of:

receiving a request from an application program, among one or more application programs, for storage of a data file of application data, the request including an expiry date, beyond which the data file is no longer required and may be deleted;

determining one or more characteristics of ~~said~~ the application data, including the expiry date;

monitoring [[S]]the status of storage devices in a plurality of storage devices;

selecting a storage device from ~~said~~ the plurality of storage devices to store a data file of application data in accordance with the characteristics of the data to be stored, including the expiry date, and the state of ~~said~~ the storage devices~~, the characteristics of the application data including an expiry date beyond which the application data is no longer required~~;

wherein ~~said~~ the data file is stored on the selected storage device.

78-80. (Canceled)